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09/674,431	01/30/2001	Klaus Fieback	22899N2PCT/U	8517

7590  
06/30/2005  
Martin A Farber  
Suite 473  
866 United Nations Plaza  
New York, NY 10017

EXAMINER

CIRIC, LJILJANA V

ART UNIT	PAPER NUMBER
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3753

DATE MAILED: 06/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/674,431

Applicant(s)

FIEBACK ET AL.

Examiner

Ljiljana (Lil) V. Ciric

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2003 and on 30 January 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-29 and 31-66 is/are pending in the application.
- 4a) Of the above claim(s) none is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-29 and 31-66 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 1.6.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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## DETAILED ACTION

### *Priority*

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. PCT/EP99/01809, filed on March 18, 1999.

### *Information Disclosure Statement*

2. The information disclosure statements (IDS) submitted on December 29, 2000 and on April 9, 2001 are in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statements are being considered by the examiner.

### *Drawings*

3. The drawings were received on September 22, 2003. These drawings are identical to the one appearing in the parent application PCT/EP99/01809 and are hereby disapproved for the reasons set forth below.
4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the following features must be shown or the feature(s) canceled from the claim(s): the homogenizing mask being disposed inside the heat storage material as recited in claim 39. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be

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necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Specification*

5. The use of various trademarks [i.e., see pages 12, 17, 19, 21] has been noted in this application. Each of these should be capitalized wherever they appear and be accompanied by the corresponding generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

### *Claim Objections*

6. Claims 1 through 29 and 31 through 66 are objected to because of the following informalities, for example: for improved consistency and clarity, either all of the elements recited in the claims which have corresponding reference characters should be identified via the corresponding reference characters enclosed in parenthesis, or none of the elements should be thus identified. Additionally, "a" should be inserted immediately preceding "distributed manner" in each of claims 6 and 64. Also, the term "wherein" [claim 59, line 3] is misspelled and should be replaced with "wherein". Appropriate correction is required.

### *Claim Rejections - 35 USC § 112*

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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8. Claims 1 through 29 and 31 through 66 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document, are written in a generally run-on fashion, and contain grammatical and idiomatic informalities which further render the claims indefinite with regard to the scope of protection sought.

For example, it is not clear exactly which heat storage materials are encompassed by the limitation "*paraffin-based* latent heat storage material."

Regarding each of base claims 1, 22, 29, and 48, for example, the phrase "capillary-like" renders these claims and all claims depending therefrom indefinite because the claims include elements not actually disclosed (those encompassed by "-like"), thereby rendering the scope of the claims unascertainable. See MPEP § 2173.05(d). The respective scopes of the terms "platelet-like" [claim 11, line 5; claim 28, line 4; ], "grain-like" [claim 11, line 5], "capillary-like" [claim 24, line 6; claim 36, line 3], and, "panel-like" [claim 34, line 4; claim 35, line 4] are similarly indeterminate and further render the claims indefinite.

With regard to claim 8 as written, it is not clear which type(s) of efficiency are encompassed by the term "of differing efficiency" as cited in line 5 of the claim.

It is not clear how many individual support-material bodies are necessarily encompassed by the limitation "a number of individual support-material bodies" [claim 10, line 5].

With regard to limitations such as "is provided in the form of grains or granules" [claim 12, line 5], "is provided as a powder" [claim 13, line 5], "is provided in the form of a sheath" [claim 52, line 4], and "is provided as a film, film packing or bundle of films" [claim 53, lines 4-5], it is not clear whether these limitations are merely intended to be equivalents to, respectively, the limitations "is in the form of

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grains or granules”, “is a powder”, “is in the form of a sheath”, “is a film, film packing or bundle of films”, or whether the former set of limitations are intended to recite the act of providing the respective materials, for example.

There is insufficient antecedent basis in the claims for the following limitations, for example: “closeable opening” [claim 20, line 5]; “two panel-like heat storage elements” [claim 34, lines 4-5]; “a panel-like heat storage element” [claim 35, lines 4]; “a solid heat storage element” [claim 36, line 5]; “a three-dimensional distribution of the microwave radiation intensity” [claim 38, lines 3-4]; “a microwave oven” [claim 39, line 4; claim 43, line 5; claim 60, line 4]; “the glass part” [claim 41, line 3]—note that there would be sufficient antecedent basis for the limitation “the one or more glass parts”; “the microwave radiation source” [claim 46, lines 4-5; claim 66, line 5]; “a heat-conducting sheet made from material with good thermal conductivity” [claim 47, lines 7-9]; “the wavelength of microwave radiation selected for supplying energy” [claim 49, lines 8-10]; “the glass body” [claim 56, line 5; claim 57, line 4; claim 59, line 5]; “the glass part” [claim 62, lines 3-4; claim 63, lines 3-4]; “the glass parts” [claim 64, lines 3-4]; and, “the microwave oven” [claim 64, lines 4-5].

With regard to claim 22 as written, it is not clear whether or not the limitation “a latent heat storage body” as cited in lines 11-12 of the claim refers back to the latent heat storage body previously recited in lines 1-2 of the claim, thus rendering indefinite the metes and bounds of protection sought by the claim and all claims depending therefrom.

The multiple sets of alternative limitations (i.e., “and/or”) appearing in each of claims 25, 26, 38, 39, 45, 50, and 58 further render these claims indefinite with regard to the scope of protection sought thereby.

There appear to be a word or words missing immediately following “is a nonwoven” at the end of claim 27.

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The limitations "for heating a solid or a liquid heat storage material which *on its own* cannot be heated by microwave radiation or *can be heated to a lesser extent than water*" [claim 31, lines 1-4] are not clear as written thus rendering the intended use of the claimed method indefinite. The preamble of each of base claims 48 and 49 contains the same limitations and the claims are similarly rendered indefinite thereby.

Also with regard to base claim 31 as written, the limitations beginning with "in a quantitative proportion according to which" and going to the end of the claim are generally incomprehensible as written, thus rendering claim 31 and claims 32 through 47 depending therefrom indefinite with regard to the scope of protection sought thereby.

With regard to claim 32 as written, it is not clear whether or not the limitation "a heat storage material" as cited in line 3 of the claim refers back to the same heat storage material as cited in claim 31 from which claim 32 depends.

With regard to claim 33 as written, it is not clear whether or not the limitation "a hygroscopic material" as cited in line 3 of the claim refers back to the same hygroscopic material as cited in claim 31 from which claim 33 depends.

The term "tight-meshed" in at least claims 46 and 66 is a relative term which renders the claim indefinite. The term "tight-meshed" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Thus, as used to qualify the structure of the metal grid, this term renders the same indeterminate and the claims indefinite.

The term "good" in claim 47 is a relative term which renders the claim indefinite. The term "good" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the

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invention. Thus, as used to qualify the thermal conductivity in the transition region, this term renders the same indeterminate and the claims indefinite.

The term "high" in claim 49 is a relative term which renders the claim indefinite. The term "high" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Thus, as used to qualify the dielectric loss index, this term renders the same indefinite with regard to the scope of protection sought.

Also with regard to claim 49 as written, the limitations "the length of the absorption body in one direction of extent corresponds to at least half the wavelength of microwave radiation selected for supplying energy" are generally incomprehensible as written, thus rendering claim 49 and all claims depending therefrom indefinite with regard to the scope of protection sought.

A word or words appear to be missing from the limitation "is in formed to be tight-meshed" [claim 66, line 4].

The above is an indicative, but not necessarily an exhaustive, list of 35 U.S.C. 112, second paragraph, problems. Applicant is therefore advised to carefully review all of the claims for additional problems. Correction is required of all of the 35 U.S.C. 112, second paragraph problems, whether or not these were particularly pointed out above.

***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this



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subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

10. As best can be understood in view of the indefiniteness of the claims, claims 1, 3, 5, 8, 9, 12, 13, 16 through 18, 21, and 48 are rejected under 35 U.S.C. 102(b) as being anticipated by Schoenfelder.

Schoenfelder discloses a latent heat storage body or block 10 essentially as claimed, including, for example: a paraffin-based latent heat storage material 30 held within a carrier material or thermally conductive fibrous mesh material or distribution body including capillary spaces formed therein, a non-homogeneous hygroscopic material or concrete (which thus inherently has "differing efficiency") surrounding the latent heat storage material 30, and an impermeable sheath or membrane 32 holding the latent heat storage material of the latent heat storage body.

The reference thus reads on the claims.

11. Alternately for claims 1, 3, 9, 12, 13, 21, and 48 and as best can be understood in view of the indefiniteness of the claims, claims 1 through 4, 6, 7, 9, 12, 13, 19, 21 and 48 are rejected under 35 U.S.C. 102(b) as being anticipated by Salee ('519).

Salee ('519) discloses a latent heat storage body having a paraffin-based latent heat storage material [see column 2, lines 22-26] essentially as claimed, including, for example: a carrier material or open cell material such as a foam, sponge or rubber material with capillary-like open spaces or open cells [see column 2, lines 46-54], a hygroscopic material such as one of the salts listed in lines 65-67 of column

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6, a vapor permeable sheath (i.e., fabric) outer cover 25, and, a vapor impermeable sealing cover or sheath 40.

The reference thus reads on the claims.

12. Alternately for claims 1, 3, 5, 6, 8, 9, 12, 13, 16 through 19, and 48 and as best can be understood in view of the indefiniteness of the claims, claims 1, 3, 5, 6, 8 through 29, and 48 are rejected under 35 U.S.C. 102(b) as being anticipated by Benson et al. ('864)

Benson et al. ('864) discloses a latent heat storage body and method of making the same essentially as claimed, including, for example an organic phase change material held or impregnated in a porous material and further including one or more fibrous (i.e., hygroscopic) additives such as cellulose and natural fabric fibers. See lines 7-30 of column 4, lines 6-34 of column 6, lines 3-14 of column 7, lines 15-66 of column 8, and lines 17-57 of column 10 disclose the various embodiments as claimed. Note that the porous aggregate particles of lines 23-28 of column 8 are made of a hygroscopic material, as well, for example.

The reference thus reads on the claims.

13. Alternately and as best can be understood in view of the indefiniteness of the claims, claims 1 through 23, 25, 27, 29, and 48 are rejected under 35 U.S.C. 102(b) as being anticipated by Payne et al.

Payne et al. discloses a latent heat storage body having a paraffin-based latent heat storage material [see column 4, lines 18-23] essentially as claimed. The salts which may be part of the heat storage material [i.e., see claims 18 and 19] are readable on the hygroscopic material as cited in claims 1, 6 through 8, 12 through 14, 23, 25, 29, and 48. For example, depressions 64 as shown in Figure 8 are readable on the capillary-like holding spaces are recited in the claims, whereas the material forming the depressions 64 is readable on the carrier material. Alternately, the sheets 12 and 14 being made of fabric or paper [see column 5, lines 1-3] are readable on the hygroscopic material as recited in claim 18, for example. Sheets 12 and 14 are readable on the sheath, which may be impermeable when made from

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plastic or foil and which may be permeable when made from fabric, paper or foam. The plastic crystals described in lines 54-62 of column 4 are readable on the individual support bodies as recited in claims 10 and 11, for example.

The reference thus reads on the claims.

*Allowable Subject Matter*

14. As best can be understood in view of the indefiniteness of the claims, claims 31 through 47 would be allowable if rewritten or amended without significant broadening (i.e., without deletion of limitations) to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

15. The non-application of art against claims 49 through 66 should NOT be construed as an indication that the claims contain allowable subject matter but rather that the patentability of the claims cannot be determined at this time due to indefiniteness under 35 U.S.C. 112, second paragraph.

*Conclusion*

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ljiljana (Lil) V. Ciric whose telephone number is 571-272-4909. The examiner can normally be reached on Mondays through Fridays from 10:00 a.m. to 6:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gene Mancene, can be reached at 571-272-4930.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair->

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Ljiljana (Lil) V. Ciric  
Primary Examiner  
Art Unit 3753